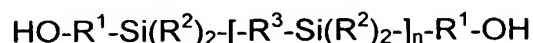


WHAT IS CLAIMED IS:

1. A segmented polymer comprising one or more soft segments comprising silane-containing groups, wherein the soft segments are
5 derived from a compound of the formula:



wherein:

- 10 n = 1 or more;
 each R¹ is independently a straight chain or branched alkylene group optionally including heteroatoms;
 each R² is independently a saturated or unsaturated aliphatic group, an aromatic group, or combinations thereof,
15 optionally including heteroatoms; and
 each R³ is independently a straight chain alkylene group, a phenylene group, or a straight chain or branched alkyl substituted phenylene group, wherein each R³ optionally includes heteroatoms;
20 with the proviso that the polymer is substantially free of carbonate linkages.

2. The polymer of claim 1 which is substantially free of urea linkages.
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3. The polymer of claim 1 wherein n = 1 to 50.

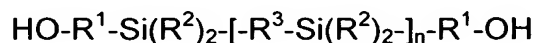
4. The polymer of claim 1 wherein each R¹ is independently a straight chain or branched (C3-C20)alkylene group.
30

5. The polymer of claim 1 wherein each R² is independently an alkyl group, a phenyl group, or an alkyl substituted phenyl group.

6. The polymer of claim 5 wherein each R^2 is independently a straight chain or branched (C1-C20)alkyl group, a phenyl group, or a straight chain or branched (C1-C20)alkyl substituted phenyl group.
- 5 7. The polymer of claim 6 wherein each R^2 is independently a straight chain (C1-C3)alkyl group.
8. The polymer of claim 1 further comprising urethane groups.
- 10 9. The polymer of claim 1 wherein each R^3 is independently a (C1-C20)alkylene group.
10. The polymer of claim 1 wherein each R^3 is independently a (C4-C12)alkylene group.
- 15 11. The polymer of claim 10 wherein each R^3 is independently a (C6-C10)alkylene group.
12. The polymer of claim 1 with the proviso that when R^3 is an
20 unsubstituted straight chain alkylene group it has more than 4 carbons.
13. The polymer of claim 1 which is a biomaterial.
14. The polymer of claim 1 which is substantially free of ether and
25 ester linkages.
15. The polymer of claim 1 which is linear, branched, or crosslinked.
16. The polymer of claim 1 further comprising one or more soft
30 segments derived from a diol that does not contain a silane-containing group.

17. The polymer of claim 1 further comprising one or more hard segments derived from a chain extender.

18. A medical device comprising a segmented polymer comprising
5 one or more soft segments comprising silane-containing groups derived from a compound of the formula:



10 wherein:

n = 1 or more;

each R¹ is independently a straight chain or branched alkylene group optionally including heteroatoms;

each R² is independently a saturated or unsaturated
15 aliphatic group, an aromatic group, or combinations thereof, optionally including heteroatoms; and

each R³ is independently a straight chain alkylene group, a phenylene group, or a straight chain or branched alkyl substituted phenylene group, wherein each R³ optionally includes
20 heteroatoms;

with the proviso that the polymer is substantially free of carbonate linkages.

19. The medical device of claim 18 wherein the segmented polymer
25 is substantially free of urea linkages.

20. The medical device of claim 18 wherein n = 1 to 50.

21. The medical device of claim 18 wherein each R¹ is independently
30 a straight chain or branched (C3-C20)alkylene group.

22. The medical device of claim 18 wherein each R² is independently an alkyl group, a phenyl group, or an alkyl substituted phenyl group.

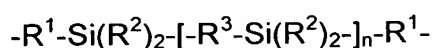
23. The medical device of claim 22 wherein each R^2 is independently a straight chain or branched (C1-C20)alkyl group, a phenyl group, or a straight chain or branched (C1-C20)alkyl substituted phenyl group.
- 5
24. The medical device of claim 23 wherein each R^2 is independently a straight chain (C1-C3)alkyl group.
25. The medical device of claim 18 further comprising urethane
- 10 groups.
26. The medical device of claim 18 wherein each R^3 is independently a (C1-C20)alkylene group.
- 15
27. The medical device of claim 18 wherein each R^3 is independently a (C4-C12)alkylene group.
28. The medical device of claim 27 wherein each R^3 is independently a (C6-C10)alkylene group.
- 20
29. The medical device of claim 18 with the proviso that when R^3 is an unsubstituted straight chain alkylene group it has more than 4 carbons.
- 25
30. The medical device of claim 18 wherein the polymer is a biomaterial.
31. The medical device of claim 18 wherein the polymer is substantially free of ether and ester linkages.
- 30
32. The medical device of claim 18 wherein the polymer is linear, branched, or crosslinked.

33. The medical device of claim 18 wherein the polymer further comprises one or more soft segments derived from a diol that does not contain a silane-containing moiety.

5 34. The medical device of claim 18 wherein the polymer further comprises one or more hard segments derived from a chain extender.

35. A segmented polymer comprising one or more soft segments comprising silane-containing groups of the formula:

10



wherein:

n = 1 or more;

15

each R¹ is independently a straight chain or branched alkylene group optionally including heteroatoms;

each R² is independently a saturated or unsaturated aliphatic group, an aromatic group, or combinations thereof, optionally including heteroatoms; and

20

each R³ is independently a straight chain alkylene group, a phenylene group, or a straight chain or branched alkyl substituted phenylene group, wherein each R³ optionally includes heteroatoms;

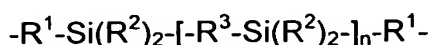
with the proviso that the polymer is substantially free of carbonate

25

linkages.

36. The polymer of claim 35 comprising urethane groups.

37. A medical device comprising a segmented polymer comprising
30 one or more soft segments comprising silane-containing groups of the formula:



wherein:

n = 1 or more;

each R¹ is independently a straight chain or branched
5 alkylene group optionally including heteroatoms;

each R² is independently a saturated or unsaturated
aliphatic group, an aromatic group, or combinations thereof,
optionally including heteroatoms; and

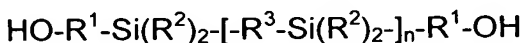
each R³ is independently a straight chain alkylene group, a
10 phenylene group, or a straight chain or branched alkyl substituted
phenylene group, wherein each R³ optionally includes
heteroatoms;

with the proviso that the polymer is substantially free of carbonate
linkages.

15

38. The medical device of claim 37 wherein the segmented polymer
comprises urethane groups.

39. A method of making a segmented polymer, the method
20 comprising: combining a polyisocyanate with a compound of the formula:



wherein:

25

n = 1 or more;

each R¹ is independently a straight chain or branched
alkylene group optionally including heteroatoms;

each R² is independently a saturated or unsaturated
aliphatic group, an aromatic group, or combinations thereof,
30 optionally including heteroatoms; and

each R³ is independently a straight chain alkylene group, a
phenylene group, or a straight chain or branched alkyl substituted

phenylene group, wherein each R³ optionally includes heteroatoms;
with the proviso that the polymer is substantially free of carbonate linkages.

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40. The method of claim 39 wherein the segmented polymer comprises urethane groups.